

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

To:

see form PCT/ISA/220

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2004/004950

International filing date (day/month/year)  
24.11.2004

Priority date (day/month/year)  
23.01.2004

International Patent Classification (IPC) or both national classification and IPC  
C09D11/00, C09B67/00, C09B47/26

Applicant  
AVECIA LIMITED

**1. This opinion contains indications relating to the following items:**

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/GB2004/004950

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**Box No. II Priority**

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1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☐ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

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**Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

|                               |             |       |
|-------------------------------|-------------|-------|
| Novelty (N)                   | Yes: Claims | 1-17  |
|                               | No: Claims  |       |
| Inventive step (IS)           | Yes: Claims | 1-15  |
|                               | No: Claims  | 16,17 |
| Industrial applicability (IA) | Yes: Claims | 1-17  |
|                               | No: Claims  |       |

2. Citations and explanations

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**WRITTEN OPINION OF THE  
 INTERNATIONAL SEARCHING  
 AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/004950

**Re Item V.**

1 The following documents are referred to in this communication:

- D1: DE 41 08 596 A1 (CIBA-GEIGY AG, BASEL, CH) 26 September 1991 (1991-09-26)
- D2: WO 01/66647 A (AVECIA LIMITED; PATEL, PRAKASH; WIGHT, PAUL) 13 September 2001 (2001-09-13)
- D3: US-A-5 665 871 (PEDRAZZI ET AL) 9 September 1997 (1997-09-09)
- D4: WO 03/078529 A (AVECIA LIMITED; ROBERTSON, COLIN, DICK; JOHNSON, JILL, LOUISE; PATEL,) 25 September 2003 (2003-09-25)

Document D4 is cited in the application.

**2 INDEPENDENT CLAIM 1**

2.1 Document D3, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

A method of ink jet printing on a substrate using an ink comprising a phthalocyanine dye (claim 1, 23 and 24). The dye is obtained by a process comprising continuous ultra filtration, without loss of dye stuff, using a membrane with a "cut-off level" of 2,000-15,000 (example 1).

From this, the subject-matter of independent claim 1 differs in that:

A phthalocyanine dye of formula (1) is used and that cross flow filtration is used for the fractionation of the dye.

The subject-matter of claim 1 is therefore novel (Article 33(2) PCT).

The applicant has not shown, e.g. by means of comparative examples, that the molecular structure of the phthalocyanine dye and the flow direction in the filtration process give rise to a technical effect.

The problem to be solved by the present invention may be regarded as:

To provide an alternative phthalocyanine dye produced with an alternative filtration process. A person skilled in the art will find in document D2 (examples 1 and 2) phthalocyanine dyes of the present Formula (1) and in document D1 (page 2, line 10-11 and 33-35; page 4, line 38-59 and page 5, line 17-20) a purification process for phthalocyanine dyes by means of cross flow filtration. However, a skilled person will not combine 3 documents to solve the problem posed.

The solution to the problem proposed in claim 1 of the present application is therefore considered as involving an inventive step (Article 33(3) PCT).

- 2.2 Claims 2-12 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

**3 INDEPENDENT CLAIM 13**

- 3.1 A similar reasoning applies to the subject matter of independent claim 13 and its dependent claims 14 and 15.

**4 INDEPENDENT CLAIMS 16 AND 17**

- 4.1 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):  
A process for the purification of a dye such as phthalocyanine with cross flow filtration. The dyes are usable in ink jet inks (page 2, line 10-11 and 33-35; page 4, line 38-59 and page 5, line 17-20).

From this, the subject-matter of independent claim 16 differs in that:

The phthalocyanine dye is of the present formula (1) and the ink is defined by its viscosity and ion concentration and is filtered.

The subject-matter of claim 16 is therefore novel (Article 33(2) PCT).

The applicant has not shown that the distinguishing features give rise to a technical effect.

The problem to be solved by the present invention may be regarded as:

To provide an alternative ink jet ink having a defined viscosity and ion concentration and comprising an alternative phthalocyanine dye.

Document D4 discloses an ink jet ink comprising a phthalocyanine dye of present Formula (1). The ink is filtered through a filter having a mean pore size below 10µm and has a viscosity of less than 20 cP and less than 500ppm, in total of divalent and trivalent metal ions (page 1, line 21-29; page 7, line 22-34 and claims 1, 7-13).

Therefore, the solution to the problem proposed in claim 16 of the present application is not considered as involving an inventive step (Article 33(3) PCT).

**5 INDEPENDENT CLAIM 17**

5.1 A similar reasoning applies to the subject matter of independent claim 17

**Re Item VIII.**

The application does not meet the requirements of Article 6 PCT, because claims 1 and 16 are not clear.

Claims 1 and 16: The attention of the applicant is drawn to the fact that the term "optionally" has no limiting effect on the scope of the claim, that is to say, the feature following said term is to be regarded as entirely optional (PCT Guidelines 5.40).